

**Form PTO-1449 Modified**Docket No.
ISIS-4943Serial No.
09/996,263List of Patent and Publications
Cited by Applicant
(Use several sheets if necessary)Applicant
Phillip Dan Cook et al.U.S. Department of Commerce
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November 28, 2001Group
1635**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

JDS	IX	Arya, S. K. et al., "Inhibition of RNA Directed DNA Polymerase of Murine Leukemia Virus by 2'-O-Alkylated Polyadenylic Acids," <i>Biochemical and Biophysical Research Communications</i> , 1974 , 59(2), 608-615
	IY	Arya, S. K. et al., "Inhibition of Synthesis of Murine Leukemia Virus in Cultured Cells by Polyribonucleotides and Their 2'-O-Alkyl Derivatives," <i>Molecular Pharmacology</i> , 1976 , 12, 234-241
	IZ	DeClercq, E. et al., "Influence of various 2- and 2'-substituted polyadenylic acids on murine leukemia virus reverse transcriptase," <i>Cancer Letters</i> , 1979 , 7, 337
	JA	Hobbs, J. et al., "Polynucleotides Containing 2'-Amino 2'-deoxyribose and 2'-Azido-2'-deoxyribose [†] ," <i>Biochem.</i> , 1973 , 12, 5138-5145
	JB	Hobbs, J. et al., "Poly 2'-Deoxy-2'-Aminouridylic Acid," 1972 , 46(4), 1509-1515
	JC	Pieken, W. et al., "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," <i>Science</i> , 1991 , 253, 314-317
	JD	Pilet, J. et al., "Structural parameters of single and double helical polyribonucleotides," <i>Biochem Biophys Res Commun</i> , 1973 , 52(2), 517-523
	JE	Rottman, F. et al., "Polynucleotides Containing 2'-O-Methyladenosine. I. Synthesis by Polynucleotide Phosphorylase," <i>Biochem</i> , 1968 , 7, 2634-2641
	JF	Rottman, F. et al., "Polymers Containing 2'-O-Methylnucleotides. II. Synthesis of Heteropolymers," <i>Biochem</i> , 1969 , 8(11), 4354-4361
	JG	Wincott et al., "Synthesis, deprotection, analysis and purification of RNA and ribozymes," <i>Nucl. Acids Res.</i> , 1995 , 23(14), 2677-2684
✓	JH	Zmudzka, B. et al., "Poly 2'-O-methylcytidylic acid and the role of the 2'-hydroxyl in polynucleotide structure," <i>Biochem Biophys Res Commun</i> , 1969 , 37(6), 895-901
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Examiner Initial		Document No.	Date	Name	Class	Subclass
JDS	JI	5,804,683	09/08/98	Usman et al.	536	25.31
JDS	JJ	5,891,683	04/06/99	Usman et al.	435	91.31

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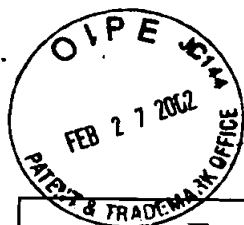
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	AB	Ikehara et al., "A Linear Relationship Between Electronegativity of 2'-Substituents and Conformation of Adenine Nucleosides", <i>Tetrahedron Letters</i> , 1979, 42, 4073-4076
	AC	Ikehara et al., "Polynucleotides. LII. synthesis and properties of poly (2'-deox-2'-fluoroadenylic acid)", <i>Nucleic Acids Research</i> , 1978 , 5, 1877-1887
	AD	Ikehara et al., "Studies of Nucleosides and Nucleotides-LXV ¹ Purine Cyclonucleosides-26 A Versatile Method for the Synthesis of Purine O-Cyclo-Nucleosides. The First Synthesis of 8,2'-Anhydro-8-Oxy 9-β-D-Arabinofuranosylguanine", <i>Tetrahedron</i> , 1975 , 31, 1369-1372
	AE	Arnott et al., "Optimised Parameters for A-DNA and B-DNA", <i>Biochem. Biophys. Res. Comm.</i> , 1970 , 47, 1504-1510
	AF	Beaucage et al., "Deoxynucleoside phosphoramidites -- A new class of key intermediates for deoxypolynucleotide synthesis", <i>Tetra. Lett.</i> , 1981 , 22, 1859-1862
	AG	Butke et al., "Facile synthesis of 2'-amino-2'-deoxynucleoside from the corresponding arabino derivative", <i>Nucleic Acid Chemistry</i> , 1986 , Part Three, 149-152
	AH	Eckstein, et al., "Polynucleotides containing 2'-chloro-2'-deoxyribose," <i>Biochemistry</i> , 1972 , 11, 4336-4344
	AI	Fox, et al., "Nucleosides, XVIII. Synthesis of 2'-Fluorothymidine, 2'-fluorodeoxyuridine, and other 2'-halogeno-2'-deoxy nucleosides," <i>J. Org. Chem.</i> , 1964 , 29, 558-564
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	AK	Ikehara et al., "Polynucleotides. LVI. Synthesis and Properties of Poly(2'-deoxy-2'-fluoroinosinic Acid)", <i>Nucleic Acids Res.</i> , 1978 , 5, 3315-3324
✓	AL	De las Heras, et al., "3'-C-Cyano-3'-deoxythymidine," <i>Tet. Letts.</i> , 1988 , 29, 941-944
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	AN	Ikehara et al., "Recognition by restriction endonuclease <i>EcoR1</i> of deoxyoctanucleotides containing modified sugar moieties", <i>European J. Biochem.</i> , 1984, 139 , 447-450	
	AO	Inoue et al., "Synthesis and hybridization studies on two complementary nona(2'-O-methyl) ribonucleotides", <i>Nucleic Acid Res.</i> , 1987, 15 , 6131-6148	
	AP	Jarvi et al., "Synthesis and biological evaluation of dideoxynucleosides containing a difluoromethylene unit", <i>Nucleosides & Nucleotides</i> , 1989, 8 , 1111-1114	
	AQ	Koole et al., "Synthesis of phosphate-methylated DNA fragments using 9-fluorenylmethoxycarbonyl as transient base protecting group", <i>J. Org. Chem.</i> , 1989, 54 , 1657-1664	
	AR	Jones et al., "4'-substituted nucleosides. 5. hydroxymethylation of nucleoside 5'-aldehydes", <i>J. Org. Chem.</i> , 1979, 44 , 1309-1317	
	AS	Marcus-Sekura, "Comparative inhibition of chloramphenicol acetyltransferase gene expression by antisense oligonucleotide analogues having alkyl phosphotriester, methylphosphonate and phosphorothioate linkages", <i>Nucleic Acids Res.</i> , 1987, 15 , 5749-5763	
	AT	Markiewicz et al., "Simultaneous Protection of 3'- and 5'-Hydroxyl Groups of Nucleosides", <i>Nucleic Acid Chemistry</i> , Part 3, pgs. 222-231, L.B. Townsend, et al., Eds., J. Wiley and Sons, New York, 1986	
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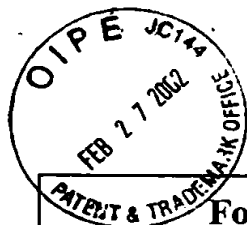
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	AW	Parkes et al., "A short synthesis of 3'-cyano-3'-Deoxythymidine", <i>Tetrahedron Letters</i> , 1988, 29, 2995-2996
	AX	Ranganathan, "Modification of the 2'-Position of Purine Nucleosides: Synthesis of 2'-a-Substituted-2'-Deoxyadenosine Analogs", <i>Tetrahedron Letters</i> , 1977, 15, 1291-1294
	AY	Shibahara et al., "Inhibition of Human Immunodeficiency Virus (HIV-1) Replication by Synthetic Oligo-RNA Derivatives", <i>Nucleic Acids Research</i> , 1987, 17, 239-252
	AZ	Sproat et al., "New synthetic routes to protected purine 2'-O-methylriboside-3'-O-phosphoramidites using a novel alkylation procedure", <i>Nucleic Acids Research</i> , 1990, 18, 41-49
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✓	BB	Beaucage, et al., "3H-1,2-benzodithiole-3-one 1,1-dioxide as an improved sulfurizing reagent in the solid-phase synthesis of oligodeoxyribonucleoside phosphorothioates," <i>J. Am. Chem. Soc.</i> , 1990, 112, 1253-1254
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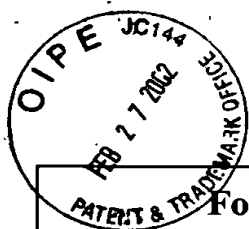
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	BD	Ogilvie, et al., "Solution and solid phase chemical synthesis of arabinonucleotides," <i>Can. J. Chem.</i> , 1989 , 831-839	
	BE	Gait, M.J. (Ed.), "Oligonucleotide Synthesis. A Practical Approach", Chapter 13, Atkinson and Smith, Authors, IRL Press, 1984	
	BF	Guschlbauer et al., "Nucleoside conformation is Determined by the Electronegativity of the Sugar Substituent", <i>Nucleic Acids Res.</i> , 1980 , 8, 1421	
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U	BJ	Ikehara et al., "Improved Synthesis of 2'-fluoro-2'-deoxyadenosine and Synthesis and Carbon-13 NMR Spectrum of its 3',5'-cyclic Phosphate Derivative", <i>Nucleosides & Nucleotides</i> , 1983 , 2, 373-385	
	BK	Agrawal, S., et al., "Oligodeoxynucleoside phosphoramidates and phosphorothioates as inhibitors of human immunodeficiency virus," <i>Not a proper reference</i>	
JDS	BL	Augustyns, et al., "Influence of the incorporation of (s)-9-(3,4-dihydroxy-butyl)adenine on the enzymatic stability and basepairing properties of oligodeoxynucleotides," <i>Nucleic Acids Res.</i> , 1991 , 19, 2587-2593	
	BM	Beaton, et al., Chapter 5, "Synthesis of oligonucleotide phosphorodithioates," page 109, "Oligonucleotides and analogs, <i>A Practical Approach</i> , Eclsteom. F. (Ed.); The Practical Approach Series, IRL Press, NY, 1991 , 109-135	
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JDS	BP	Kawasaki, et al., "Synthesis and biophysical studies of 2'-dRIBO-2'-F modified oligonucleotides, Conference on Nucleic Acid Therapeutics, Clearwater, FL., January 13, 1991
	BQ	Kawasaki, et al., "Uniformly modified 2'-deoxy-2'-fluoro phosphorothioate oligonucleotides as nuclease-resistant antisense compounds with high affinity and specificity for RNA targets," <i>J. Med. Chem.</i> , 1993 , 36, 831-841
	BR	Kierzek, et al., "Association of 2'-5' oligoribonucleotides," <i>Nucleic Acids Res.</i> , 1992 , 20, 1685-1690
	BS	Matteucci, M., "Hybridization properties of a deoxyoligonucleotide containing four formacetal linkages," <i>Nucleosides & Nucleotides</i> , 1991 , 10, 231-234
	BT	Borthwick, et al., "Synthesis of chiral carbocyclic nucleosides," <i>Tetrahedron</i> , 1992 , 48, 571-623
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	BV	Cohen in Oligonucleotides: Antisense inhibitors of gene expression, CRC Press, Boca Raton, FL, 1989 , 1-255
	BW	Dagle, et al., "Physical properties of oligonucleotides containing phosphoramidate-modified internucleoside linkages," <i>Nucleic Acids Research</i> , 1991 , 19, 1805-1810
	BX	Dagle, et al., "Targeted degradation of mRNA in xenopus oocytes and embryos directed by modified oligonucleotides: studies of An2 and cyclin in embryogenesis," <i>Nucleic Acids Res.</i> , 1990 , 18, 4751-4757
	BY	Dagle, et al., "Pathways of degradation and mechanism of action of antisense oligonucleotides in xenopus laevis embryos," <i>Antisense Res. And Dev.</i> , 1991 , 1, 11-20
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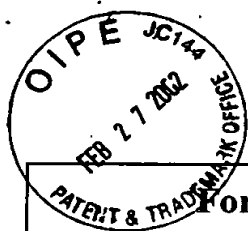
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	CB	Gagnor, et al., "α-DNA VI: comparative study of α- and β- anomeric oligodeoxyribonucleotides in hybridization to mRNA and in cell free translation inhibition," <i>Nucleic Acids Res.</i> , 1987 , 15, 10419-0436	
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	CD	Matteucci, "Deoxyoligonucleotide analogs based on formacetal linkages," <i>Tetr. Letts.</i> , 1990 , 31, 2385-2388	
	CE	Mertes, et al., "Synthesis of carbonate analogs of dinucleosides. 3'-thymidinyl 5'-thymidinyl carbonate, 3'-thymidinyl 5'-(5-fluoro-2'-deoxyuridinyl) carbonate, and 3'-(5-fluoro-2'-deoxyuridinyl) 5'-thymidinyl carbonate." <i>J. Med. Chem.</i> , 1969 , 12, 154-157	
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	CG	Miller, et al., Chapter 6, "Synthesis of oligo-2'-deoxyribonucleoside methylphosphonates," page 137, <i>Oligonucleotides and Analogs, A Practical Approach</i> , Eckstein, F. (Ed.), The Practical Approach Series, IRL Press, NY, 1991	
	CH	Miller, et al., Chapter 30, "Oligonucleotide inhibitors of gene expression in living cells: new opportunities in drug design," <i>Annual Reports in Medicinal Chemistry</i> , 1988 , 295-304	
	CI	Monia, et al., "Evaluation of 2'-modified oligonucleotides containing 2'-deoxy gaps as antisense inhibitors of gene expression," <i>J. Bio. Chem.</i> , 1993 , 208, 14514-14522	
✓	CJ	Musicki, et al., "Synthesis of nucleoside sulfonates and sulfones," <i>Tetr. Letts.</i> , 1991 , 32, 1267-1270	
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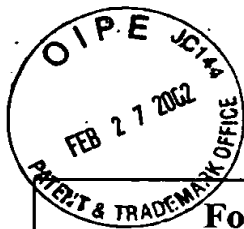
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	CM	Borer et al., "Stability of ribonucleic acid double-stranded helices", <i>J. Mol. Biol.</i> , 1974, 86, 843-853
	CN	Ogilvie, et al., "Synthesis of a thymidine dinucleotide analogue containing an internucleotide silyl linkage," <i>Tet. Letts.</i> , 1985, 26, 4159-4162
	CO	Perbost, et al., "Sugar modified oligonucleotides, I. Carbooligodeoxynucleotides as potential antisense agents," <i>Biochem. And Biophys. Res. Comm.</i> , 1989, 165, 742-747
	CP	Petersen, et al., "Chemical synthesis of dimer ribonucleotides containing internucleotidic phosphoradithioate linkages," <i>Tet. Letts.</i> , 1990, 31, 911-914
	CQ	Sagi, et al., "Biochemical properties of oligo(+)-carbocyclic-thymidylates] and their complexes," <i>Nucleic Acids Res.</i> , 1990, 18, 2133-2140
	CR	Saison-Behmoaras, T. et al., "Short modified antisense oligonucleotides directed against Ha-ras point mutation induced selective cleavage of the mRNA and inhibit T24 cells proliferation," <i>EMBO J.</i> , 1991, 10, 1111-1118
	CS	Schneider, et al., "Oligonucleotides containing flexible nucleoside analogues," <i>J. Am. Chem. Soc.</i> , 1990, 112, 453-455
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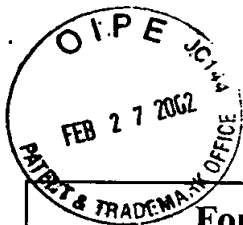
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	CY	Vasseur, J.J., et al., "Oligonucleosides: synthesis of novel methylhydroxylamine-linked nucleoside dimer and its incorporation into antisense sequences," <i>J. Am. Chem. Soc.</i> , 1992 , <i>114</i> , 4006-4007	
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	DC	Inoue, et al., "Synthesis and properties of novel nucleic acid probes," <i>Nuc. Acids Res., Symposium Series</i> , 1985 , <i>16</i> , 165-168	
	DD	Castle et al., "Imidazo[4, 5-D]pyridazines. I. Synthesis of 4,7-disubstituted derivatives", <i>J. Org. Chem.</i> , 1958 , <i>23</i> , 1534-1538	
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✓	DF	Jones, R.A., "Preparation of protected deoxyribonucleosides," from <i>Oligonucleotide Synthesis-A Practical Approach</i> , 1991 , Chapter 2, 23-34	
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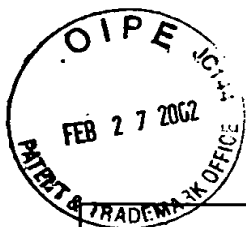
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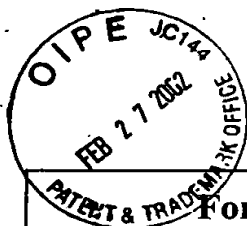
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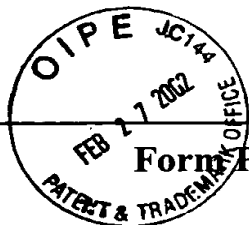
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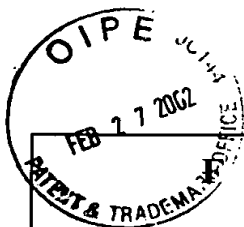
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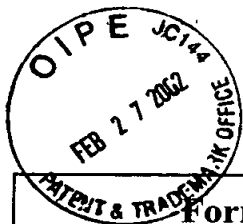
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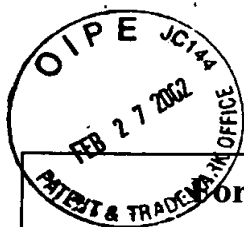


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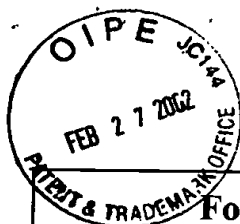
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JDS	HZ	WO 92/02258	02/20/92	PCT		
	IA	WO 91/10671	07/25/91	PCT		
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	IH	89303700.2	04/13/89	EPO		
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	IN	WO 93/07883	04/29/93	PCT		
	IO	WO 94/00467	01/06/94	PCT		
J	IP	WO 94/02501	02/03/94	PCT		
EXAMINER JDS Schutz				DATE CONSIDERED 3-19-03		

